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(12) United States Patent

Kassab et al.

(54) DEFLECTION DEVICES, SYSTEMS AND METHODS FOR THE PREVENTION OF STROKE

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See application file for complete search history.

(56) References Cited

U.S. PATENT DOCUMENTS

(Continued)

FOREIGN PATENT DOCUMENTS

JP 1221155 9/1989

OTHER PUBLICATIONS

International Searching Authority, International Search Report, dated Jun. 15, 2010 (PCT/US10/31475).

(Continued)

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(57) ABSTRACT

Deflection devices, systems, and methods for the prevention of stroke. Devices hereof comprise an extension portion and an anchor portion, both of which are configured to prevent the device from advancing into the artery extending from the aortic arch in which the device may be positioned. Additionally, a retrieval system is provided, the system comprising a sleeve catheter and a retrieval device slidably disposed therein. The distal end of the retrieval device comprises one or more attachment portions configured to engage at least a portion of the anchor portion of a device positioned within an artery extending from the aortic arch.

20 Claims, 16 Drawing Sheets

